

Applicant: Jeng et al.  
Application No.: 10/758,132

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450**

Appl No.: **10/758,132**  
Applicant: **Jeng et al.**  
Filing Date: **January 16, 2004**  
Art Unit: **2812**  
Examiner: **Richard Booth**  
Attorney Docket No.: **18806.024**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REQUEST FOR PRE-APPEAL CONFERENCE**

Sir:

This paper is to submit an updated Request For Pre-Appeal Conference, and to replace the previously submitted Request For Pre-Appeal Conference.

Respectfully submitted,  
WPAT, P.C.

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**REQUEST FOR PRE-APPEAL CONFERENCE**

Sir:

This paper is to request for a pre-appeal conference to review the Final Rejection dated on May 31, 2005 and Advisory Action dated on September 24, 2007. The Notice of Appeal in compliance of 37 CFR 41.31 has been filed on September 26, 2007. The arguments are stated below.

**IMPROPER RESTRICTION REQUIREMENT IS IMPROPER ON CLAIMS 19-20, 28-29, AND 33**

Applicant respectfully traverses the restriction request from the Examiner on 5/31/2007. Examiner's advisory action failed to response Applicant's traversal arguments filed on 8/31/2007. Applicant takes Examiner's silence as consent to Applicant's argument; thus, Applicant respectfully requests rejoining claims 19-20, 28-29, and 33. Since there were no referenced arts cited in rejecting these claims, Applicant further requests issuing allowance accordingly.

**Examiner failed to support restriction requirement with a proper foundation**

Examiner restricted out claims 19-20, 28-29, and 33 because these claims are not limited to the dielectric layers of an oxide, a nitride, and another oxide layer (Office Action, 5/31/2007, page 2). However, Examiner has examined independent claims 17, 23, and 32 in the same Office Action, which are also not limited to the dielectric layers of an oxide, a nitride, and another oxide layer. Since Examiner has examined the claims 17, 23, and 32 on the merit, Examiner cannot restrict out claim 19-20, 28-29, and 33 based on the stated reason. Thus,

Examiner failed to support restriction requirement with a proper foundation. The restriction must be withdrawn accordingly.

**Claims 19-20, 28-29, and 33 are not independent, not distinct, and not imposing serious burden**

MPEP 803.02 provides that every restriction requirement must have two criteria: the invention, as claimed, must be independent or distinct inventions, **and** there would be serious burden on the examiner if restriction were not required.

Claim 19-20, 28-29, and 33 are not independent; they are depending on claims 17, 23, and 32 respectively. All pending claims 17-33 are directed to a non-volatile memory comprising a plurality of gate dielectric layers and particular structure arrangement. Claims 19-20, 28-29, and 33 are not directed to a different product other than a non-volatile memory. Thus, the claims 19-20, 28-29, and 33 are not distinct from rest of pending claims.

All pending claims 17-33 are directed to a non-volatile memory. Claim 19-20, 28-29, and 33 are not classified under different classifications from rest of pending claims. Thus, they do not impose any serious burden on the Examiner.

**MPEP 819 is not applicable**

MPEP 819 prohibits shifting to the previously non-elected claims. Claims 19-20, 28-29, and 33 are not previously non-elected claims. The prior election was made between a product and process (see Office Action dated on 11/12/2004), and the product claims 11-16 (now replaced by claims 17-33) were elected. All the currently pending claims are product claims, including claims 19-20, 28-29, and 33. Thus, there is no shifting and the MPEP 819 is not applicable.

**Claims 19-20, 28-29, and 33 are allowable**

Claims 19 and 28 recite the limitation of silicon carbide; claims 20 and 29 recite the limitation of aluminum oxide; and claim 33 recites a fourth layer. None of the references on record disclose these claimed limitations. For the reason stated above, Applicant respectfully request rejoining the claims 19-20, 28-29, and 33, and issuing allowance accordingly.

**IMPROPER REJECTION OF CLAIMS 17-18, 21-25, 27, AND 30-32 OVER 35 USC 102(b) WITH BASS JR. ET AL. (U.S. PATENT 4,870,470)**

**Examiner's inherency assertion does not disclose the claimed structure limitations**

Applicant respectfully disagrees Examiner's assertion that the inherency discloses the claimed structure limitations. The Advisory Action on 9/24/2007 is silent regarding Applicant's arguments filed on 8/31/2007. Applicant takes Examiner's silence as consent to Applicant's argument and thus respectfully requests the allowance accordingly.

Examiner alleged that the source/drain electrodes are inherent to provide interconnection with other devices (Office Action 5/31/2007, page 3, last 2 lines of paragraph 1). Applicant respectfully disagrees because Examiner's assertion overlooks the claimed structure limitations as recited in independent claims 17, 23, and 32: a substrate, a plurality of gate dielectric layers disposed on the substrate, a gate electrode layer formed on the top of the gate dielectric layers, and a source/drain electrode formed at the substrate on both sides of the gate dielectric layer.

The independent claims 17, 23, and 32 recite a source/drain electrode formed at the substrate wherein the substrate is underneath of the gate dielectric layers. This particular location of the drain/source and the substrate as claimed is not inherent in the art as asserted by Examiner. It is noted that in the art some of the source/drain is above the substrate. Thus, the asserted inherency does not support Examiner's conclusion in rejecting these claims. Hence, Applicant respectfully requests issuing allowance on claims 17, 23, 32, and its associated dependent claims 18, 21-22, 24-25, 27, and 30-31.

**Bass does not disclose a top layer with implanted hetero element**

The independent claims 17, 23, and 32 recite a top layer with implanted hetero element. Bass does not disclose the claimed top layer with implanted hetero element. Bass discloses layers of an electron injection layer, a barrier layer, a silicon nitride film, and silicon oxide layer (column 7, lines 40-60, column 8, lines 3-20, and figure 7). Bass further discloses layers of a charge injection layer, a barrier layer, a silicon nitride film, and another silicon oxide layer (column 8, lines 3-20, and figure 7). Bass discloses the top layer as a silicon-rich SiO<sub>2</sub> or silicon-rich silicon nitride (column 8, lines 5 and 11). Bass' silicon rich layer is not the same as the claimed top layer with implanted hetero element. Bass does not disclose or explicitly teach that his silicon rich top layer is a layer with implanted hetero element. Bass's silicon rich top

layer has a different stoichiometric oxide layer than the present invention, because the present invention claims a top trapped charge dielectric layer with implanted hetero element therein. The present invention's top layer traps the hetero element. Bass's top silicon rich layer diffuses to the charge trapping layer, the Silicon Nitride (column 8, lines 2-3). Therefore, Bass teaches away from the present invention. Hence, Applicant respectfully requests issuing allowance on independent claims 17, 23, and 32, and all the pending dependent claims.

**Bass does not disclose a top oxide layer, a nitride layer, and a second oxide layer as claimed in claims 18, 22, 24, and 31**

Claims 18, 22, 24, and 31 recite a top oxide layer, a nitride layer, and a second oxide layer. Bass does not disclose the claimed layers. Bass discloses layers of an electron injection layer, a barrier layer, a silicon nitride film, and silicon oxide layer (column 7, lines 40-60, column 8, lines 3-20, and figure 7). Bass further discloses layers of a charge injection layer, a barrier layer, a silicon nitride film, and another silicon oxide layer (column 8, lines 3-20, figure 7). Neither of Bass' structure layers discloses the claimed structure of a top oxide layer, a nitride layer, and a second oxide layer. Hence Applicant respectfully request issuing allowance on claims 18, 22, 24, and 31 for the reasons stated.

**IMPROPER REJECTION OF CLAIMS 17-18, 21-25, AND 30-32 OVER 35 USC 102(e) WITH ZHENG ET AL. (U.S. PATENT 7,015,101)**

**Zheng does not disclose a top layer with implanted hetero element**

The independent claims 17, 23, and 32 recite a top layer with implanted hetero element. Zheng fails to disclose the claimed top layer with implanted hetero element because Zheng only discloses implanting on the second gate dielectric layer. Zheng discloses forming a first gate dielectric layer, a second gate dielectric layer, and a third gate dielectric layer (figure 9). Zheng discloses implanting ion trap on the second gate dielectric layer (figure 9, step 910). Zheng does not disclose implanting on the top layer or Zheng's own third layer. Thus Hence, Applicant respectfully requests issuing allowance for the reasons stated.

**Examiner's inherency assertion does not disclose the claimed structure limitations**

Applicant respectfully disagrees Examiner's assertion that the inherency discloses the claimed structure limitations. The Advisory Action on 9/24/2007 is silent regarding Applicant's arguments filed on 8/31/2007. Applicant takes Examiner's silence as consent to Applicant's argument and thus respectfully requests the allowance accordingly. The same arguments are stated in the earlier section of this paper.

**IMPROPER REJECTION OF CLAIMS 26 OVER 35 USC 103(a) WITH BASS IN VIEW OF WALKER (U.S. PATENT 5,371,027) AND NAGUIB (U.S. PATENT 4,683,645), AND OVER 103(a) WITH ZHENG IN VIEW OF WALKER AND NAGUIB**

**Neither Walker nor Naguib discloses a top gate dielectric layer with implanted hetero element**

The claim 26 depends on independent claim 23. The claim 23 recites a top gate dielectric layer with implanted hetero element. Neither Walker nor Naguib discloses a top gate dielectric layer with implanted hetero element. Walker discloses a gate tunnel layer. Walker does not disclose a top gate dielectric layer. Naguib discloses a heavy ion. Naguib does not disclose a top gate dielectric layer with implanted hetero element. Hence Applicant respectfully request issuing allowance on claim 26.

**CONCLUSION**

For the reasons stated above, Applicant respectfully requests the panel to reverse Examiner's final rejection dated on 5/31/2007, and to issue the allowance accordingly. Examiner is encouraged to contact the attorney on the record directly to expedite the prosecution process.

Respectfully submitted,  
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